

TICK TOCK

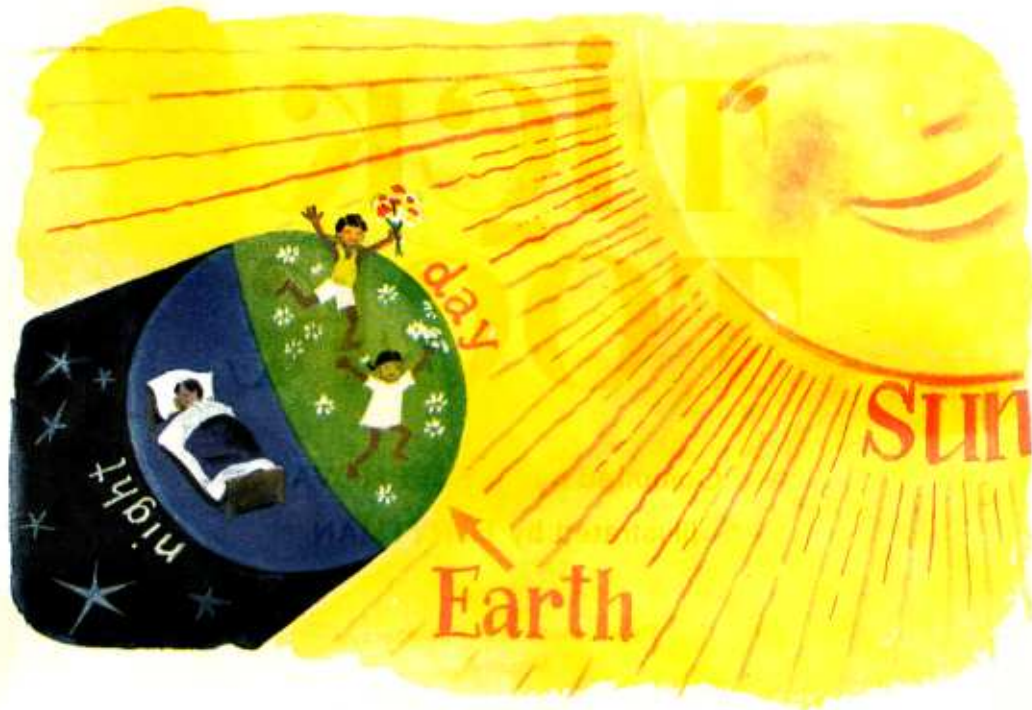
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Illustrated by B. RYTMAN

Prosveshcheniye Publishers
Moscow



DAY AND NIGHT



The Earth makes one turn on its axis every twenty-four hours. When one side of the Earth faces the Sun, we have daylight. When our side of the Earth turns away from the Sun, we have night.



See the answers
on page 44

1. What are hands that cannot hold anything?
2. Whose face needs no washing?
3. What goes up and never goes down?

WHAT TIME IS IT?

The face of a clock.

a clock



a watch



Clocks have two hands: an hour-hand and a minute-hand.
Watches often have three hands: an hour-hand, a minute-hand
and a second-hand.

The Big Hand is busy
But the Small Hand has power.
The Large one counts the minutes
But the Little one names the hour.

An hour in the morning is worth two in the evening.

Never do tomorrow what you can do today.

There is time for everything.



WHAT TIME IS IT?

An hour is part of a day. There are twenty-four hours in a day.



It is one o'clock.



It is five o'clock.



It is twelve o'clock.

There are sixty minutes in an hour. Thirty minutes make half an hour. Fifteen minutes make a quarter of an hour.



It is half
past four.



It is (a) quarter
to six.



It is (a) quarter
past two.



It is ten (minutes)
past three.



It is twenty
(minutes) to nine.



See the answer
on page 44.

It's true, I have both face and hands,
And move before your eyes;
Yet when I go, my body stands,
And when I stand, I lie.

This is the right time.



This clock
is five minutes slow.



This clock
is five minutes fast.



When both Hands stand at the top together,
It's sure to be TWELVE O'CLOCK. But whether
That's twelve at noon or twelve at night
Depends on if it's dark or light.

After Phyllis McGinley

Take care of the minutes, and the hours will take
care of themselves.

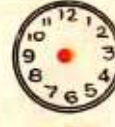
Minutes make hours.

One day is better than ten tomorrows.



MY DAY

Take a pencil and put down the correct time:

I get up at ...  	I wash and clean my teeth at ...  	I have breakfast at ...  
I dress at ...  	I leave home at ...  	I arrive at school at ...  



See the answer
on page 44.

Nature requires five,
Custom gives seven,

Laziness takes nine,
And sloth takes eleven.



My lessons are over at....  	I go home at ...  	I have dinner at ...  
I have a short rest at ...  	I begin to do my home- work at ...  	I finish doing my home- work at ...  
I go for a walk at ...  	I have supper at ...  	I go to bed at ...  

WHAT THEY SAID

"It's four o'clock,"
Said the cock.
"It's still dark,"
Said the lark.
 "What's that?"
 Said the cat.
"I want to sleep,"
Said the sheep.
 "A bad habit,"
 Said the rabbit.
"Of course,"
Said the horse.
 "But where?"
 Said the hare.
"In the house,"
Said the mouse.
 "I'm very big,"
 Said the pig.
But the dog said,
"Bow-wow! It's late now!"



MAKE YOUR OWN CLOCK!



the minute-hand



the clock face
(the dial)

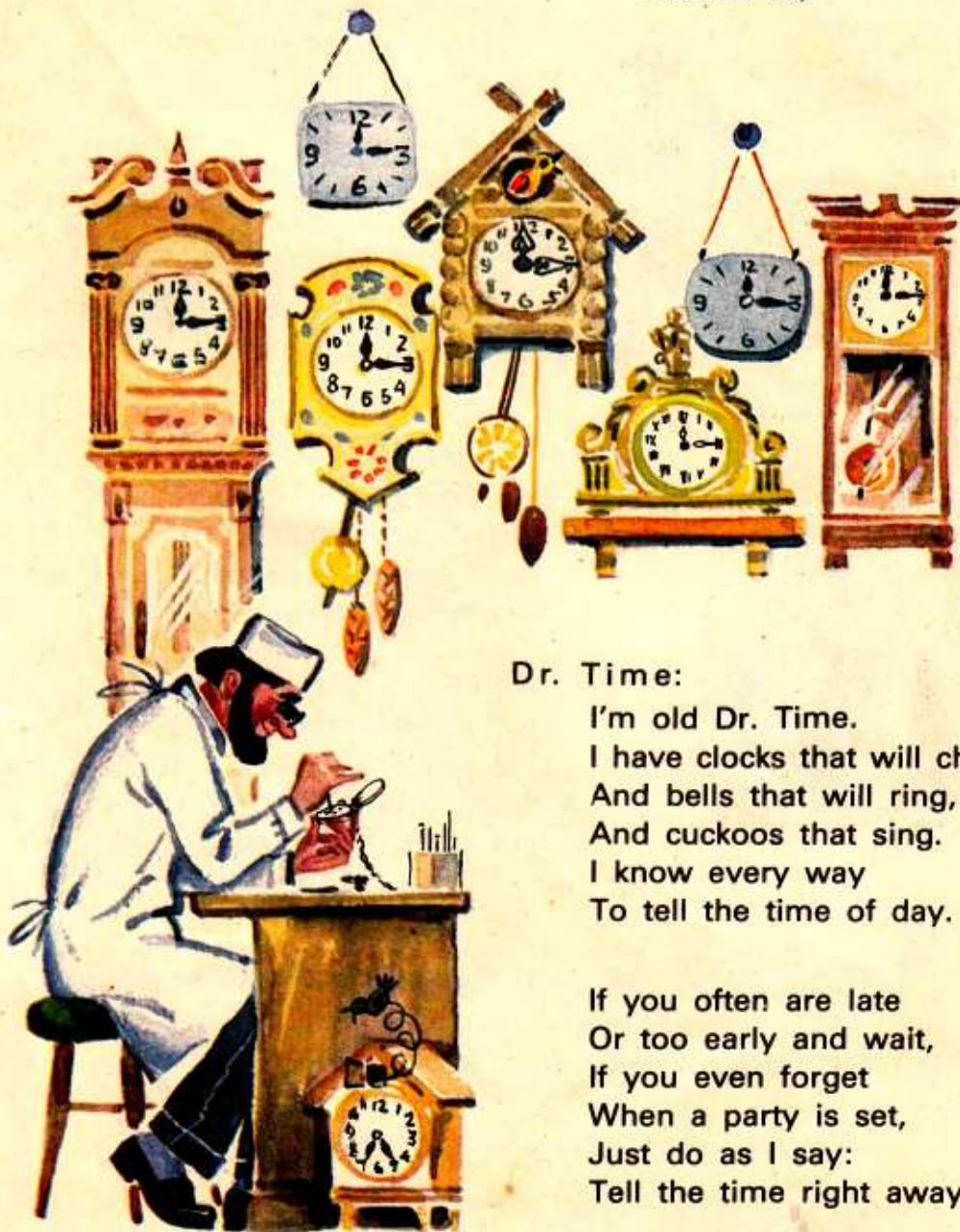
the hour-hand



1. Stick the face and the two hands onto card-board.
2. Cut them out.
3. Make a hole in the centre of the face. Make holes in the hands.
4. Pin the face and the hands together.

AT DOCTOR TIME'S OFFICE

After Alice Very



Dr. Time:

I'm old Dr. Time.
I have clocks that will chime
And bells that will ring,
And cuckoos that sing.
I know every way
To tell the time of day.

If you often are late
Or too early and wait,
If you even forget
When a party is set,
Just do as I say:
Tell the time right away.



Engineer:

One, two, three, four, five,
Six, seven, eight, nine ...
Will you, please, give me
The correct time?

Dr. Time:

The time is late,
It's half past eight.
Here's what you need
To run with speed.

Engineer:

Doctor, please, tell me,
I do not understand —
Which is the hour-,
And which the minute-hand?



See the answer
on page 44.

1. What is it that never was, never will be and yet is?
2. Why is the letter 'a' like 12 o'clock?

Hour-Hand:

The hour-hand is rather slow
Because she has so far to go.

Minute-Hand:

The minute-hand can run much
faster—
Each day and night goes
twelve times past her.
And though the time she tells
is smaller,
The minute-hand is that much taller.

Second-Hand:

Some clocks have second-hands
like me,
I'm the fastest hand
of all the three.
I go round the dial once
every minute,
If we had a race, I'd surely win it!

Engineer:

Now I have seen them,
I can tell
Minutes and hours
And seconds well!



One swallow does not make a summer.
Lost time is never found again.
A stitch in time saves nine.



HOW MANY DAYS HAS A WEEK?



Seven brothers: all the
brothers
Look exactly like each other.
But they aren't just the same:
Each one has his own name.



See the answer
on page 44.

Can you name five days of the week without
mentioning Sunday, Monday, Tuesday, Wednesday,
Thursday, Friday or Saturday?

HOW MANY?

How many seconds in a minute?
Sixty and no more in it.

How many minutes in an hour?
Sixty for sun and flower.

How many hours in a day?
Twenty-four for work and play.

How many days in a week?
Seven both to hear and speak.



AN AGE PROBLEM

Once Jill asked her grandfather, "When were you born?"
The grandfather answered, "If you write the year when I was born on a piece of paper, then turn the page upside-down, the year will remain the same."

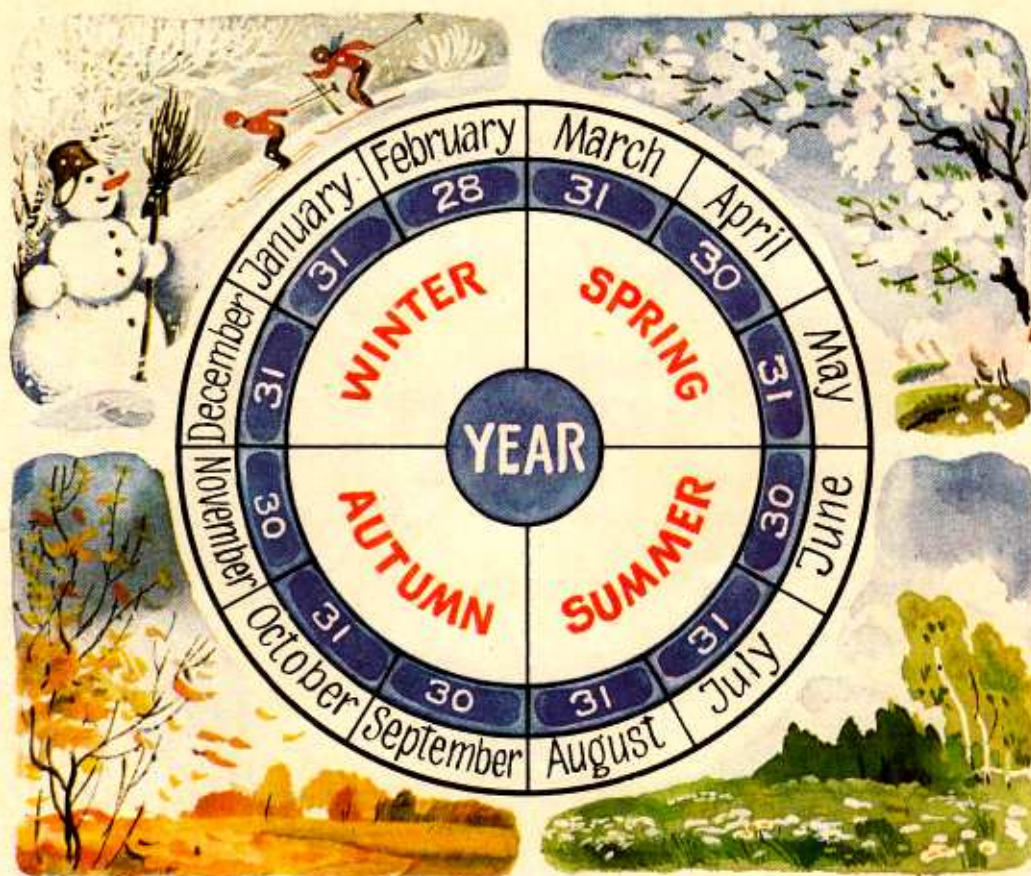
Can you say what year Jill's grandfather was born?

See the answer on page 44.

On Thursday at three
Look out and you'll see
What Friday will be.



MONTHS AND SEASONS



See the answer
on page 44.

1. It takes off a piece of its clothing each day, by the end of the year it has nothing left to wear.
2. How many months have 28 days?

HOW MANY MONTHS HAS A YEAR?



Time flies as swiftly as an arrow, and the seasons pass as quickly as a stream.

Better early than late.



AT DOCTOR TIME'S OFFICE

Dr. Time:

Swift the moments fly away,
First the hour, and then the day;
Next the week, the month, the year
Go and disappear.
The months are here,
And you can see
What they have done
All through the year.

January:

Here we go,
Fun is snow.

February:

What a pace,
Pancake race!

March:

The winds blow,
The hats go.

April:

Showers come
With the sun.

May:

First of May—
Merry day.





June:
Roses bloom,
Sweet perfume.



July:
Spend the day,
Making hay.



August:
Watch my boat,
See it float.



September:
Leaves are old—
Turning gold.

October:
Leaves on ground,
Sweep around.

November:
Foggy and gray
November day.

December:
New Year's here,
Sing and cheer.



Sunday clears away the rest of the whole week.
Every day is not Sunday.
Time and tide wait for no man.



Dr. Time:

I want to thank you
For all you bring:
For summer, winter,
Autumn and spring.

Twelve Months:

Now, farewell, we must go,
But we'll be back next year
To bring you good cheer
In every season of the year.



YEAR

January • 31

February • 28

March • 31

April • 30

May • 31

June • 30

July • 31

August • 31

September • 30

October • 31

November • 30

December • 31



See the answer
on page 44.

1. A little old woman with twelve children: some short, some long, some cold, some hot. What is it?
2. What have Sunday and Saturday in common?

THE MONTHS

R. L. Stevenson



Thirty days has September,
April, June and November;
February has twenty-eight alone,
And the rest have thirty-one,
Excepting leap-year, that's the time,
When February days are twenty-nine.

HOW OLD ARE YOU, DADDY?

Little boy:

How old are you, Daddy?

Boy's Father:

I was twice as old as you are
The day that you were born;
You will be just what I was then
When fourteen years are gone.

How old was the boy's father?

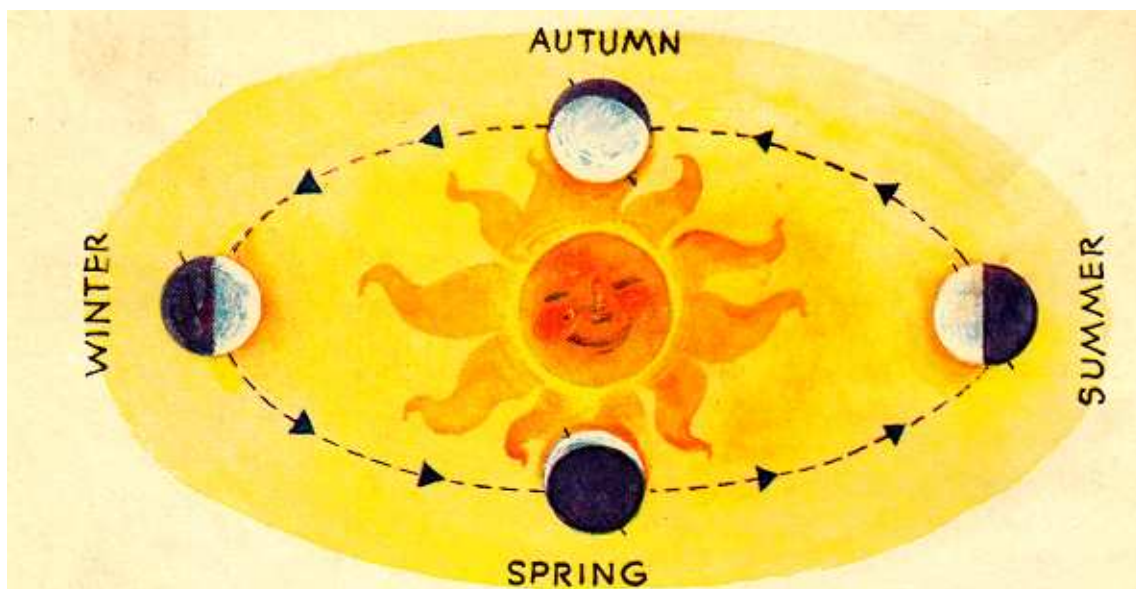
See the answer on page 44.



The sum of wisdom is, that time is never lost that
is devoted to work.

Make hay while the sun shines.





ROUND THE YEAR

On December 22, we have the shortest day and the longest night of the year, winter begins.

On March 21, the day is as long as the night, spring begins.

On June 22, we have the longest day and the shortest night of the year, summer begins.

On September 23, the day is as long as the night, autumn begins.



See the answer
on page 44.

1. In what month do children talk the least?
2. If yesterday two weeks ago was Saturday, what day will be tomorrow?

The Twelve Months

Christina Rossetti

January with cold is set,
February is chill and wet.
March wind often rages,
In April weather changes.
Pretty flowers come in May,
Sunny June brings longest day.
In hot July the skies are clear,
Then August with corn is here.
For fruit September opens the way,
October sweeps the leaves away.
Next enters gray November,
And, lastly, snowy December.



TOMMY'S BIRTHDAY

Mother: You are five today. Happy birthday to you!

Tommy: Thank you, Mama.

Mother: Would you like to have a cake with five candles on it for your birthday party?

Tommy: I think I'll better have five cakes and one candle, Mama.

East or West, home is best.

In every country the Sun rises in the morning.

Better late than never, but better never late.





THE PLANETS

Eleanor Farjeon

The Moon is made of silver,
The Sun is made of gold,
Jupiter is made of tin,
So the ancients told.

Venus is made of copper,
Saturn is made of lead,
And Mars is made of iron,
So the ancients said.

But what the Earth is made of
Very long ago
The ancients never told us
Because they didn't know.



See the answer
on page 44.

It is very old and still it shines.

Just four weeks old, and never will be five.

TWO CURIOUS PROBLEMS



1. A man has lived one-fourth of his life as a boy; one-fifth as a young man; and thirteen years as an old man. How old is the man?



$$\square + \square + \square + \square + \square = 90$$

2. A man and his wife had three children: John, Ben and Mary, and the difference between their parents' ages was the same as between John and Ben and between Ben and Mary.

The ages of John and Ben multiplied together equalled the age of the father, and the ages of Ben and Mary multiplied together equalled the age of the mother.

The ages of the whole family equalled ninety years.

What was the age of each member of the family?

See the answers on page 44.

Time brings everything to light.

Do not put off the work of this day till tomorrow.

The spring is not always green.



EYES AND NOSE ON THE WEATHER

(sayings)



Dark clouds in the West—
Stay indoors and rest.

Rain before seven,
fine before eleven.



A sunshiny shower
Won't last half an hour.

After storm,
Comes fair weather.

Evening red and morning gray
Send the traveller on his way;
Evening gray and morning red
Bring the rain upon his head.



Hark to the cricket,
whose chattering sound
Will tell you how hot is
the air near the ground.



Flies and mosquitoes are
biting and humming;
The swallows fly low;
a rain-storm is coming.



A ring around the Sun or Moon
Brings rain or snow upon you soon.

When radio programmes are
peppered with static,
There'll be lightning and
thunder and weather aquatic.

Mist drifting lazily,
close to the ground,
Tells us that rain may be
coming around.





Welcome the sound
of crackling hair,
It tells of weather
clear and fair.



If bees stay at home,
Rain will soon come;
If they fly away,
Fine will be the day.

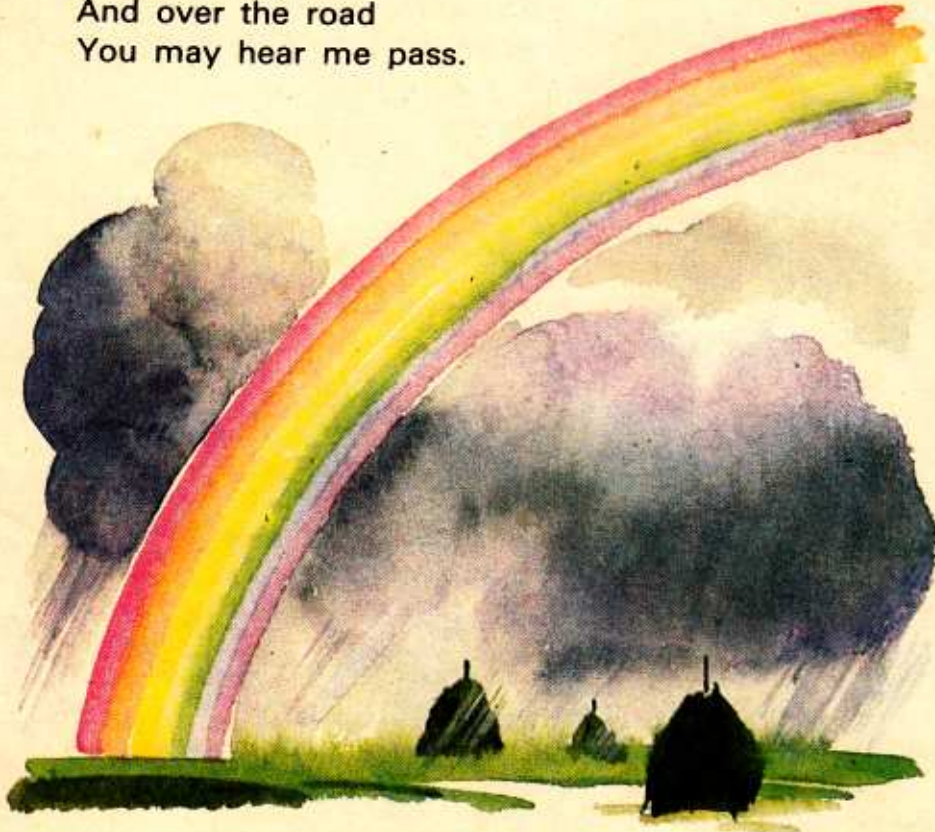
Red sky at night,
Shepherd's delight;
Red sky in the morning,
Shepherd's warning.





RHYMING RIDDLES

1. Who am I?
I come from the sky.
I wash the grass
And over the road
You may hear me pass.

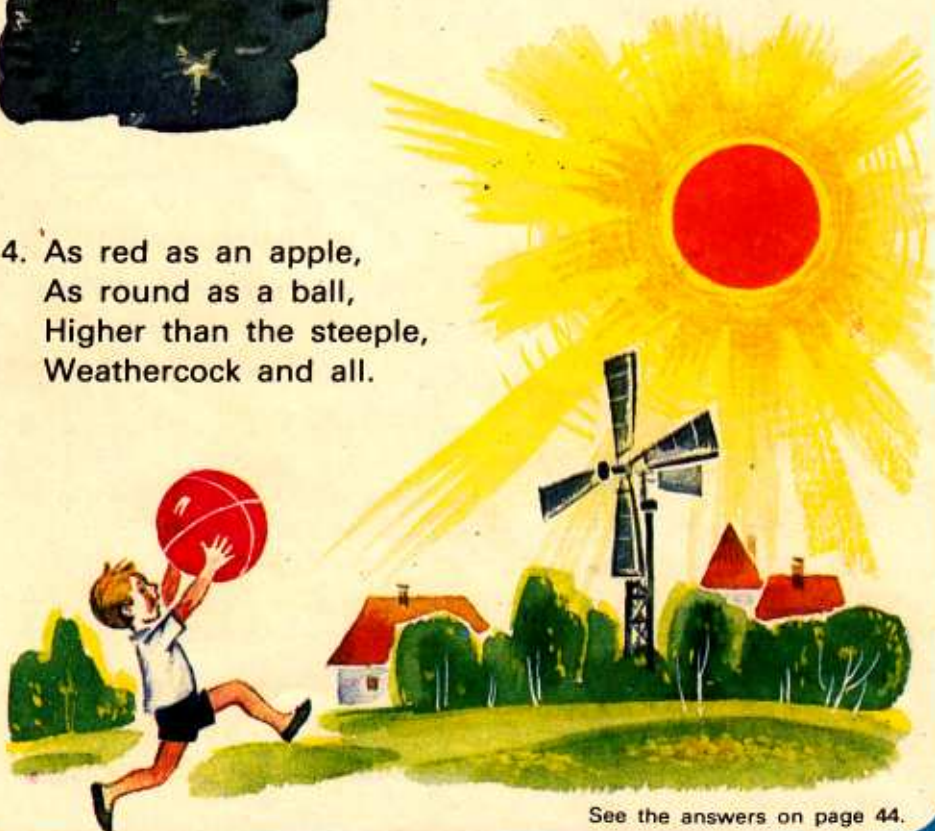


2. Red and green and delicate blue;
I can't catch it, and neither can you!



3. I have a little sister,
Her name is pretty Peep,
She wades in the waters
Deep, deep, deep!
She climbs up the mountains
High, high, high;
My poor little sister,
She has but one eye!

4. As red as an apple,
As round as a ball,
Higher than the steeple,
Weathercock and all.



See the answers on page 44.

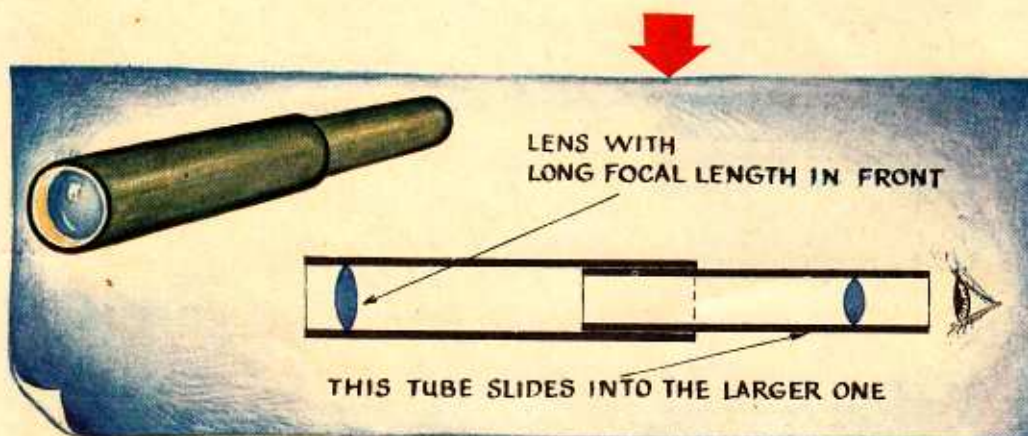
Things to Do



TELESCOPE

Take two lenses, one with a long focal length and the other with a shorter one. The focal length is the distance from the lens to the image it makes. Put the lenses in a cardboard tube, the lens with the shorter focal length closer to your eye.

Look at some distant object through both lenses. The image will be upside-down.



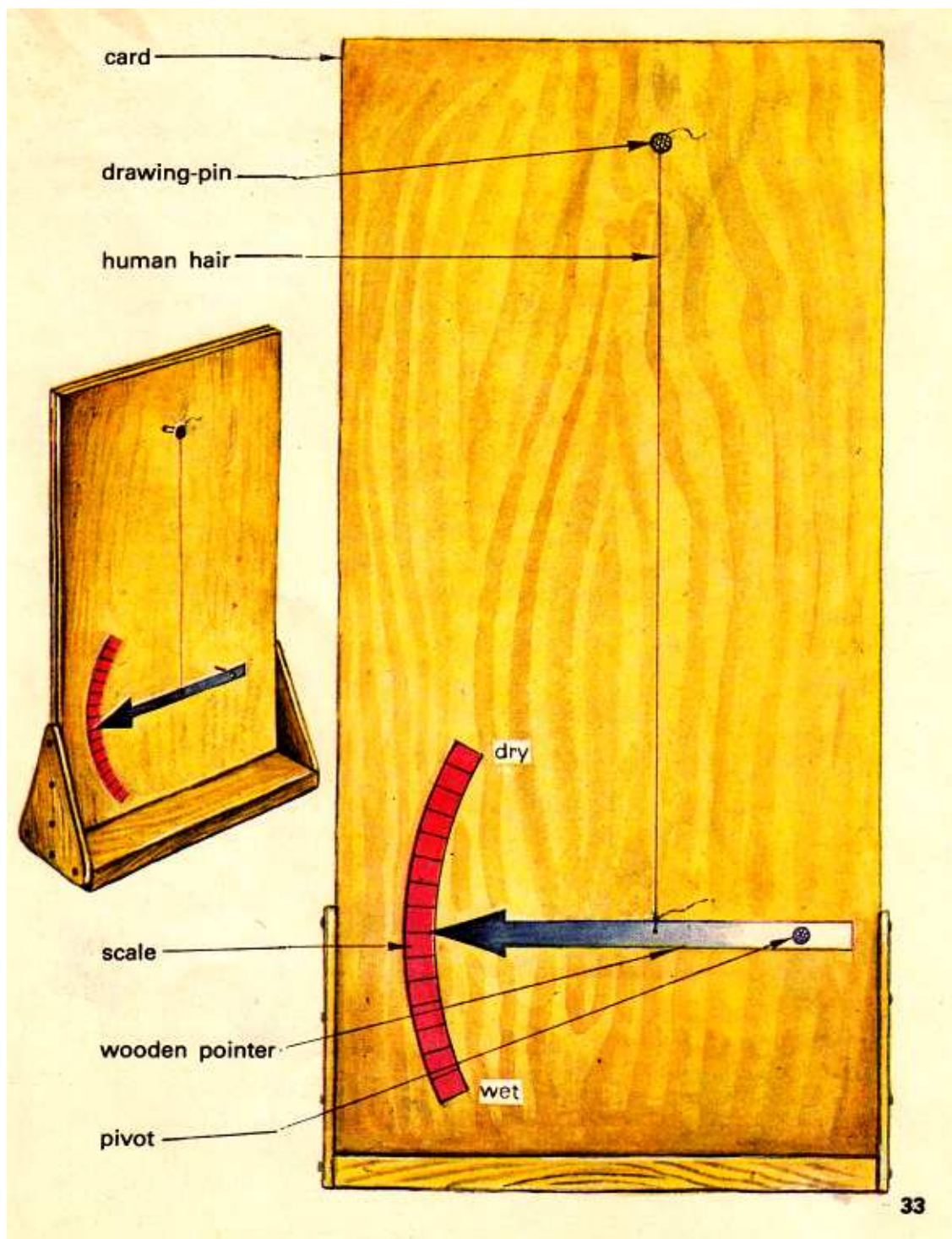
HYGROMETER

Water constantly evaporates from the land and from the lakes and oceans. The warmer the air is, the more water vapor it can hold. The cooler the air gets, the less water it can hold.

The presence of water in the air is called humidity. The instrument for measuring humidity is called a hygrometer.

The simplest hygrometer you are going to make, works because a hair stretches in humid air and shrinks in dry air without being affected by the air's temperature.

Attach a long hair to a drawing-pin and press it into a thick card. A wooden pointer is attached to the card with a pin through a hole in the pointer. When the air is damp, the hair stretches, making the pointer move downwards.



Things to Do



WIND-VANE

The weathermen must also know about the direction of the wind which blows away from a high pressure area towards a low pressure area.

For you to make a special wind-vane. It will predict the kind of weather we are going to have tomorrow.

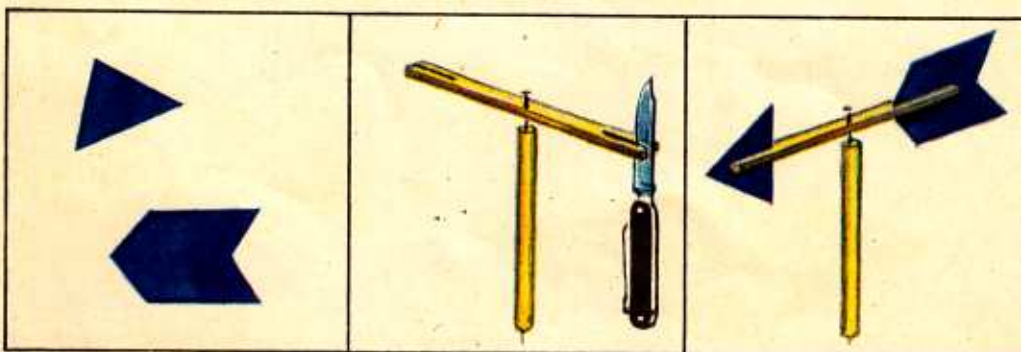
1. Cut the cardboard pieces into two shapes.
2. Push the pin through the straw at the middle point and slit the straw at both ends.
3. Slip the pieces of cardboard into the slits.
4. Push the pin into the rubber of the pencil.
5. Now blow against your wind-vane. You will notice that the pointed end always points into the wind.

Wind direction is reported as the direction from which the wind is blowing. Therefore, if a wind-vane points towards the north-west, a north-west wind is blowing.



This rhyme will help you to predict the weather:

The South wind brings wet weather.
The North wind wet and cold together.
The West wind always brings us rain.
The East wind blows it back again.



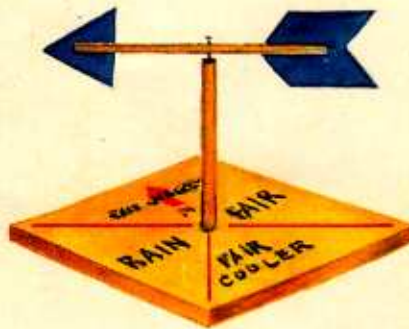
WEATHER VANE

The weather vane will not only tell the direction of the wind but it will predict the kind of weather we are going to have tomorrow.

1. Copy on the cardboard one of these three diagrams. If you live in the eastern part of the country, copy diagram **A**. If you live in the central section, copy diagram **B**, in the far west — diagram **C**.
2. Make a hole in the centre.
3. Put this weather vane in the open and be sure to point the arrow to the North.

When reading your weather vane, you must also look at the sky and notice the kind of clouds. This is very important. If there are lots of low clouds forming, and your weather vane says 'rain', you may well expect rain within twelve hours.

If your little weather vane makes mistakes, don't be too disappointed. Even the weather forecaster is sometimes wrong!



A



B



C

IT'S INTERESTING TO KNOW WHY...

WHY THE HOUR HAS SIXTY MINUTES INSTEAD OF A DECIMAL NUMBER?

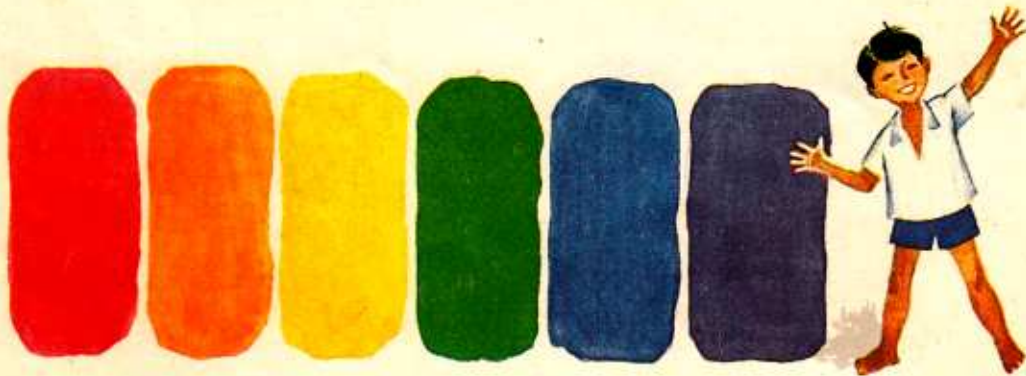
The Babylonians of 3,000 years ago used the sexagesimal system of numbering, which was based upon a multiplication of 6, instead of the decimal system which we now use. They divided the circle, for example, into 60×6 parts — the 360 degrees. Each degree, in turn, was divided into 60 parts, and each of these smaller parts was again divided into 60.

Claudius Ptolemy took this method of division from the Babylonians and called the first division of the degree the *pars minutae*, or a small part. The division of this first small part he called the *pars minutae secundae*, or the second small part. Ptolemy's names became known as *minutes* and *seconds*.

WHY IS THE SKY BLUE?

Have you ever thought why the sky isn't white, green or red? Here is the reason.

Light from the sun is white. But white is composed of many colours — yellow, orange, red, green, blue and violet. Blue and violet have shorter wave lengths than the light waves of other colours.





Small particles of dust and moisture in the atmosphere bend the blue and violet waves of the sun's rays and spread them all over the atmosphere. Therefore, we see those colours more clearly than other colours in the rays, and the sky seems blue.

WHY IS DECEMBER THE TWELFTH MONTH IN THE YEAR?

Our calendar comes from the early Romans who, before Julius Caesar, began the year in March. December was then the tenth month. When the New Year was moved to January 1, the names of the months were not shifted. Hence the disparity between the meaning of the names of certain months and their sequence:

Month	Meaning	Place
September	<i>septem</i> —seven	9th
October	<i>octo</i> —eight	10th
November	<i>novem</i> —nine	11th
December	<i>deka</i> —ten	12th

DO YOU KNOW ...

- ... that every day, every night you are riding a great spaceship? Did you ever go 66 miles an hour in a car? The Earth moves 1,000 times faster. The Earth travels 66,000 miles an hour. The most modern jet air-liner moves at about 660 miles an hour. The Earth moves 100 times faster. Each day the Earth travels 1,584,000 miles. (1 mile = 1.6 km)
- ... that the first space flight around the Earth was successfully made on April 12, 1961, by Soviet Cosmonaut Yuri Gagarin? This was the first step in man's conquest of outer space.
- ... that the first artificial satellite was launched in the USSR on October 4, 1957?





... that there are no two snowflakes which are exactly alike? Millions and millions of snowflakes fall during every snow-storm, but each snowflake is different in some way from all the others, though all snowflakes are flat, six-sided figures.

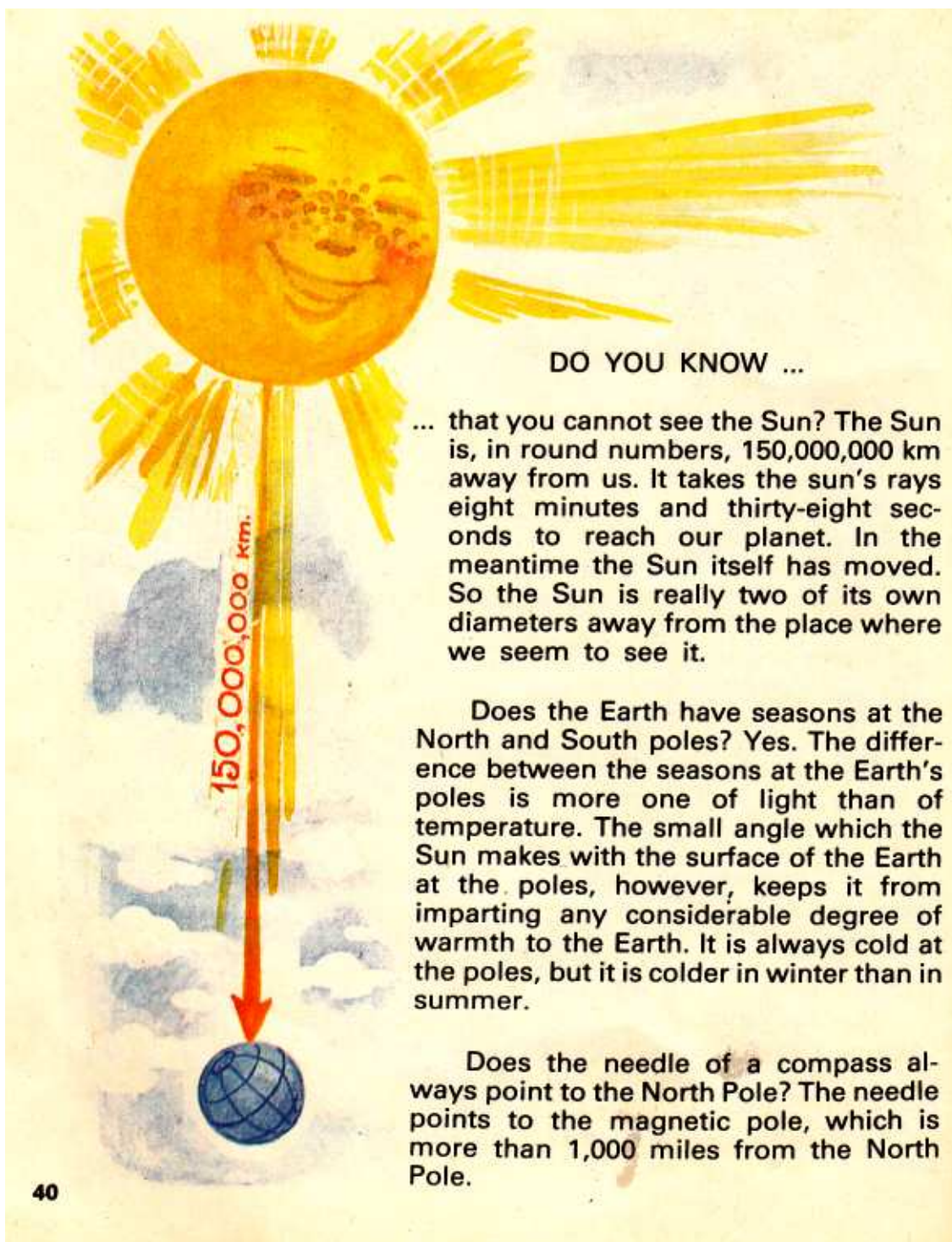
... if there are two sides of a rainbow? It is impossible for anybody to see the other side of a rainbow, because a rainbow is a reflection of sunlight from drops of water in the sky.

HOW FAR AWAY IS LIGHTNING?

Lightning is seen almost immediately. The thunder made by the lightning travels at approximately $\frac{1}{5}$ mile per second.

As soon as you see a flash of lightning, begin counting the seconds until you hear the thunder. Multiply the number of seconds by $\frac{1}{5}$ and you will learn the number of miles to the place where the lightning struck.





DO YOU KNOW ...

... that you cannot see the Sun? The Sun is, in round numbers, 150,000,000 km away from us. It takes the sun's rays eight minutes and thirty-eight seconds to reach our planet. In the meantime the Sun itself has moved. So the Sun is really two of its own diameters away from the place where we seem to see it.

Does the Earth have seasons at the North and South poles? Yes. The difference between the seasons at the Earth's poles is more one of light than of temperature. The small angle which the Sun makes with the surface of the Earth at the poles, however, keeps it from imparting any considerable degree of warmth to the Earth. It is always cold at the poles, but it is colder in winter than in summer.

Does the needle of a compass always point to the North Pole? The needle points to the magnetic pole, which is more than 1,000 miles from the North Pole.

IT'S INTERESTING TO KNOW ...

- ... that some stars are more than 400 times as large as the Sun.
- ... that the Sun moves across the sky at 19.5 km per second.
- ... that Sirius is the brightest star in the sky.
- ... that Jupiter circles the Sun once every 12 years.
- ... that the Earth weighs about 80 times as much as the Moon.
- ... that the equatorial diameter of the Earth is 12,756 km.
- ... that the distance of the Moon from the Earth is, in round numbers, 380,000 km.
- ... that the distance of the Sun from the Earth is, in round numbers, 150,000,000 km.



IT'S INTERESTING TO KNOW ...

- ... that moonlight is really reflected sunlight.
- ... that the colours of the rainbow are red, orange, yellow, green, blue and violet.
- ... that the world average temperature is 15°C.
- ... that the hottest place in the world is the Red Sea port of Massawa in Eritrea (the average day and night temperature is 30°C).
- ... that the wettest place on earth is in India. Moscow with an average annual rainfall of 24—26 inches, New York with 43 and London with 25 are dry deserts compared with Cherrapungi, India, which has an average annual rainfall of 432 inches.



THE CLOCK

Crisply

G D7

"Tick-tock, tick-tock," mer - ri - ly sings the

G D7

clock. I hear it sing - ing through the day, "It's

D7 G G

time for work and time for play." "Tick - tock,

D7 G

tick - tock," mer - ri - ly sings the clock.



MORNING IS COME

smoothly

I

Morn - ing is come, Night is a - way,

II

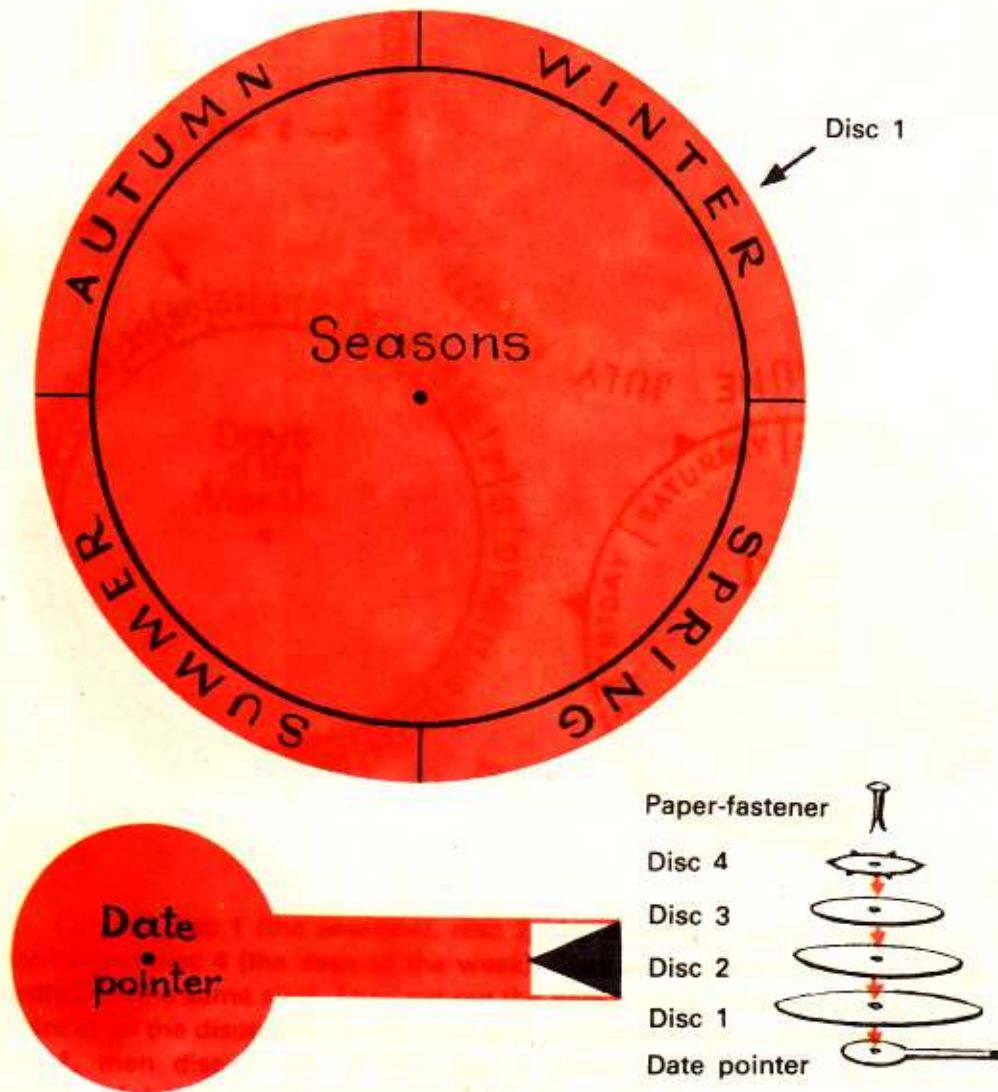
Rise with the sun, and wel - come the day.

ANSWERS

- p. 2** 1. The hands of a clock.
2. The face of a clock.
3. Your age.
- p. 4** A watch.
- p. 6** Hours of sleep
- p. 12** 1. Today.
2. Because it is in the middle of the 'day'.
- p. 14** 'Today', 'yesterday', 'the day before yesterday', 'tomorrow', 'the day after tomorrow'.
- p. 15** Jill's grandfather was born in 1881
- p. 16** 1. A calendar. 2. All of them.
- p. 20** 1. A year. 2. The letter 's'.
- p. 21** On the day the boy was born, the father was twice as old as the boy is today. That is what the puzzle says. In 14 years' time the boy will be as old as his father was then. So the boy is 14 today, his father was 28 when the boy was born. In 14 years' time the boy will be 28, so the father today must be 42.
- p. 22** 1. In February. Because it is the shortest month of the year. 2. Monday.
- p. 24** The Moon.
- p. 25** 1. The man is sixty years old.
2. The father and mother were both of the same age, thirty-six years, and the three children were triplets of six years of age.
- p. 30** 1. Rain.
2. Rainbow.
- p. 31** 3. A star.
4. The Sun.

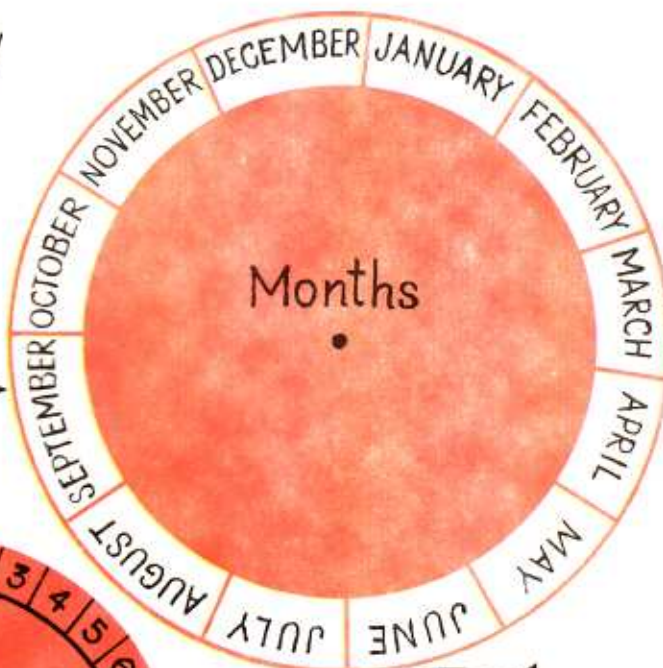
MAKE YOUR CALENDAR FOR THE YEAR!

It is a calendar for every year. Pin it up in your room at home, or in your classroom at school. Change it every day. In this way you can tell the date, the day of the week, and the season.





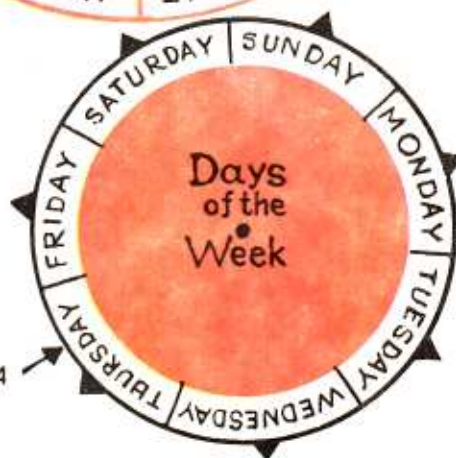
Disc 2 →



Disc 3 →



Disc 4 →



Cut out disc 1 (the seasons), disc 2 (the months), disc 3 (the days of the month) and disc 4 (the days of the week). Stick each disc onto a round piece of cardboard (the same size). Then cut out the date pointer. Make a hole through the centre of all the discs and through the date pointer. On top of the date pointer, put disc 1, then disc 2, disc 3 and disc 4. Then take the paper-fastener (or a drawing-pin) and put it through all the discs and the pointer.